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CAESAR, RIVISE, BERNSTEIN,
COHEN & POKOTILOW, LTD.
11TH FLOOR, SEVEN PENN CENTER
1635 MARKET STREET
PHILADELPHIA, PA 19103-2212

EXAMINER

LOFFREDO, JUSTIN E

ART UNIT	PAPER NUMBER
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3744

NOTIFICATION DATE	DELIVERY MODE
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01/27/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@crbcp.com

Office Action Summary	Application No. 10/598,436	Applicant(s) OH ET AL.	
	Examiner JUSTIN LOFFREDO	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 05 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21 and 24-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21 and 24-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/05/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation that the "inner wall is substantially grid-shaped" in line 2 of the claim is unclear in context. For the purposes of examination the examiner has interpreted "substantially grid-shaped" to mean shaped to allow a material to pass through the wall.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. **Claims 21, 24, 35 and 40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rode (US Patent No. 6,044,648) in view of Roslonski (US Patent No. 3,595,030).

Consider claim 21. Rode discloses a cooling device (40) (i.e. cooling equipment) for cooling a cooled material, said cooling equipment comprising: an interior chamber (50) (i.e. a cooling space) capable of receiving the cooled material; inner walls (52) and (54) limiting the cooling space (50); an outer wall (fig. 3 below); plenums (56), (58) and (60), which make up an intermediate space between the outer wall and the inner walls (52) and (54); and a perforated tube (66) (i.e. a cooling agent supply line) for introducing a cooling agent wherein the cooling agent supply line (66) empties into the intermediate space between the inner walls (52) and (54) and the outer wall, and continuously transfer the cooling agent into the cooling space (col. 3, L 10-48; Fig. 3).

Rode fails to disclose a porous buffer material arranged in the intermediate space, or that the cooling agent supply line introduces the cooling agent into the porous buffer material of the intermediate space, the porous buffer material being adapted to temporarily receive the cooling agent, or cooling agent being transferred through the inner wall with the inner wall being permeable for the cooling agent.

Roslonski teaches a porous insulating (i.e. buffer) material (34) arranged in an outer compartment (32) (i.e. an intermediate space), and that tubing (15) (i.e. a cooling agent supply line) introduces a cooling agent into the porous buffer material (34) of the intermediate space (32), the porous buffer material (34) being adapted to be capable of temporarily receiving the cooling agent, and cooling agent being transferred through enclosure (20) (i.e. an inner wall) via holes (36), with the inner wall having holes (36) and thus being permeable for the cooling agent (col. 2, L 24-71; Fig. 2).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the cooling device disclosed by Rode to include the cooling assembly with the porous buffer material as taught by Roslonski in order to reduce and maintain reduced temperatures within the cooling space.

Consider claim 24. Roslonski discloses a plurality of holes (36) that are formed in the enclosure (20) (i.e. inner wall) (col. 2, L 58-60), which is interpreted to be a substantially grid-shaped inner wall.

Consider claim 35. Rode teaches a pressure relief valve (80) and aperture (82) (i.e. a cold gas outlet) via which cooling agent and cold gas can escape from the cooling

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space (50) being arranged on an upper side of the cooling space (50) (Col. 3, L 5-7 & 36-40; Figure 3).

Consider claim 40. Rode teaches a liquid refrigerant (i.e. cooling agent), such as liquid nitrogen (Col. 3, L 2-3).

7. **Claims 25 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rode (US Patent No. 6,044,648) and Roslonski (US Patent No. 3,595,030) as applied to claim 21, and further in view of Barthel (US Patent No. 4,481,779).

Consider claims 25 and 26. Rode and Roslonski disclose the claimed invention but fail to disclose the inner wall being made of a thermally conductive material, which further consists essentially of metal.

Barthel teaches that the inner wall (28) can be made of any material composition, e.g. metal or plastic (col. 5, L 26-27), metal being a thermally conductive material.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cooling device disclosed by Rode and Roslonski with the thermally conductive inner wall taught by Barthel in order to provide a thermally conductive material effective for cooling, and also since metal is a material that will retain its form after being repeatedly subjected to cold shocks at liquid nitrogen temperatures.

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1. **Claims 27 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rode (US Patent No. 6,044,648) and Roslonski (US Patent No. 3,595,030) as applied to claim 21, and further in view of Palma (US Patent No. 3,618,336).

Consider claims 27 and 28. Rode and Roslonski disclose the claimed invention but fail to disclose the cooling space being vat shaped where the cooling agent supply line has a cooling agent distributor along the upper circumferential edge to introduce a cooling agent into the intermediate space in a distributed manner over the length of the cooling agent distributor.

Palma teaches a cooled coffin structure where the wall of the coffin is hollow and passages are provided which are cooling agent distributors communicating with the interior of the hollow wall and the interior of the coffin, which is the cooling space, and means such as a blower or fan are provided outside of the coffin to continuously circulate air which is a cooling agent through the hollow walls so that a stream of cooling agent flows into the intermediate space and then into the cooling (col. 1, L 46-55; col. 2, L 13-15). A channel (20) that is a cooling agent supply line extends circumferentially along the internal sides of the wall portion (14) (col. 1, L 46-55; Col. 2, L 13-15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cooling device disclosed by Rode and Roslonski with the cooling distribution arrangement taught by Palma in order to distribute the cooling agent throughout the entire cooling space.

8. **Claims 29 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rode (US Patent No. 6,044,648) and Roslonski (US Patent No. 3,595,030) as applied to claim 21, and further in view of Binder (US Patent No. 5,601,143).

Consider claims 29 and 30. Rode and Roslonski disclose the claimed invention but fail to disclose a heating element being arranged in the cooling space; or that the heating element is arranged under a heating plate, the heating plate having several perforations that make a circulation of gas possible.

Binder teaches a heating element (44) being arranged in a cooling space; the heating element (44) being arranged under the base (12) and behind side walls (18), which make up a heating plate, the heating plate having several apertures (38) (i.e. perforations) that make a circulation of gas possible (col. 3, L 30-60; col. 4, L 11-14, 49-56; Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cooling device disclosed by Rode and Roslonski with the heat element arrangement taught by Binder in order to control the temperature of the circulating air in the cooling space.

2. **Claims 31-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rode (US Patent No. 6,044,648) and Roslonski (US Patent No. 3,595,030) as applied to claim 21, and further in view of Walker et al. (US Patent No. 5,976,871).

Consider claims 31-33. Rode and Roslonski disclose the claimed invention but fail to disclose a removable protective bell on the cooling space that is at least partially transparent and has a sample lock.

Walker et al. teaches a protective enclosure (23) (i.e. a protective bell), that is capable of being removed and has a transparent door (33) and a drying cavity (31) in the enclosure (i.e. a sample lock) separated from the outside environment (col. 5, L 15-17, 25 & 27; Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cooling device disclosed by Rode and Roslonski with the protective bell arrangement taught by Walker et al. in order to protect the biological samples and allow them to be arranged or prepared in situ without contact with the outside environment.

Consider claim 34. Roslonski discloses conduits (48) (i.e. cold gas outlets) on the bottom of enclosure (30) through which cooling agent and cold gas that has come from cooling space (22) can escape. In this instance the enclosures (20) and (30) and the removable cover (24) form a covering (i.e. a protective bell) on an inner compartment (22) (i.e. a cooling space) (col. 2, L 47, 53; col. 3, L 13-15; Fig. 2).

3. **Claim 36, 38 and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rode (US Patent No. 6,044,648) and Roslonski (US Patent No. 3,595,030) as applied to claim 21, and further in view of Weng (US Patent No. 6,845,628).

Consider claim 36. Rode and Roslonski disclose the claimed invention but fail to disclose a temperature sensor in the cooling space capable of measuring a temperature in the cooling space; a controllable cooling agent valve capable of adjusting an amount of cooling agent supplied; or a temperature control device capable of regulating the temperature in the cooling space, the temperature control device being connected on an input to the temperature sensor and on an output side to the cooling agent valve.

Weng teaches a temperature control device with a temperature sensor that senses temperature at a specified location within a refrigeration apparatus. The temperature control device has a first flow valve (i.e. a cooling agent valve) that can selectively increase or decrease the flow of refrigerant in response to temperature sensed by the sensor. The temperature sensor also contains a controller (i.e. a temperature control device) that is capable of controlling the valve in response to temperature sensed (col. 2, L 2-14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cooling device with a cooling space disclosed by Rode and Roslonski with the temperature controlling arrangement and temperature sensor taught by Weng in order to monitor and provide reliable control for the temperature within the cooling space of the device by providing the sensor within the cooling space so that the temperature is appropriate for cooling the biological samples.

Consider claim 38. Weng discloses the temperature sensor sensing temperature at a specified location within the refrigeration apparatus (i.e. in the cooling

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space as discussed in the rejection of claim 36) capable of measuring a temperature of a cryosample in the cooling space (col. 2, L 2-14).

Consider claim 39. Rode and Roslonski disclose the claimed invention including a cooling device with a cooling space (22) that receives a refrigerant, and a plurality of holes (36) that are formed in an inner wall (20) through which the cooling space (22) and intermediate space (32) are in fluid flow communication (Roslonski - col. 2, L 38-71). Roslonski (figure 2) illustrates that the refrigerant that is a cooling agent flows from the tubing (15), into the cooling space (22) and through holes (36) into the intermediate space (32). Therefore, no cooling agent lake forms in the cooling space (22).

Rode and Roslonski fail to disclose a temperature control that adjusts a supply of cooling agent.

Weng teaches a temperature control device with a temperature sensor that senses temperature within a refrigeration apparatus. The temperature control device has a first flow valve which is a cooling agent valve that can selectively increase or decrease the flow of cooling agent in response to temperature sensed by the sensor (col. 2, L 2-14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cooling device disclosed by Rode and Roslonski with the temperature controlling arrangement taught by Weng in order to monitor and provide a desired amount of cooling agent to the device for controlling the temperature within the cooling space so that the temperature is appropriate for the biological samples.

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9. **Claim 37** is rejected under 35 U.S.C. 103(a) as being unpatentable over Rode (US Patent No. 6,044,648), Roslonski (US Patent No. 3,595,030) and Weng (US Patent No. 6,845,628) as applied to claim 36, and further in view of Ali (US Patent No. 5,546,756).

Rode, Roslonski and Weng disclose the claimed invention but fail to disclose the temperature control device connect via a pulse generator to the cooling agent valve, where the pulse generator is capable of alternatively opens and closes the cooling agent valve.

Ali discloses a controller (1) (i.e. a temperature control device) including (i.e. connected via) a pulse generator to valve (6) (i.e. a cooling agent valve), where the pulse generator is capable of alternatively opening and closing the cooling agent valve (6) via a pulse width control signal (col. 2, L 61-61; col. 3, L 4-10, 37-40; Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cooling device disclosed by Rode, Roslonski and Weng with the controller and valve arrangement taught by Ali in order to control cooling within the cooling space by controlling the amount of cooling agent that flows through the valve and into the cooling space.

Rode – Figure 3

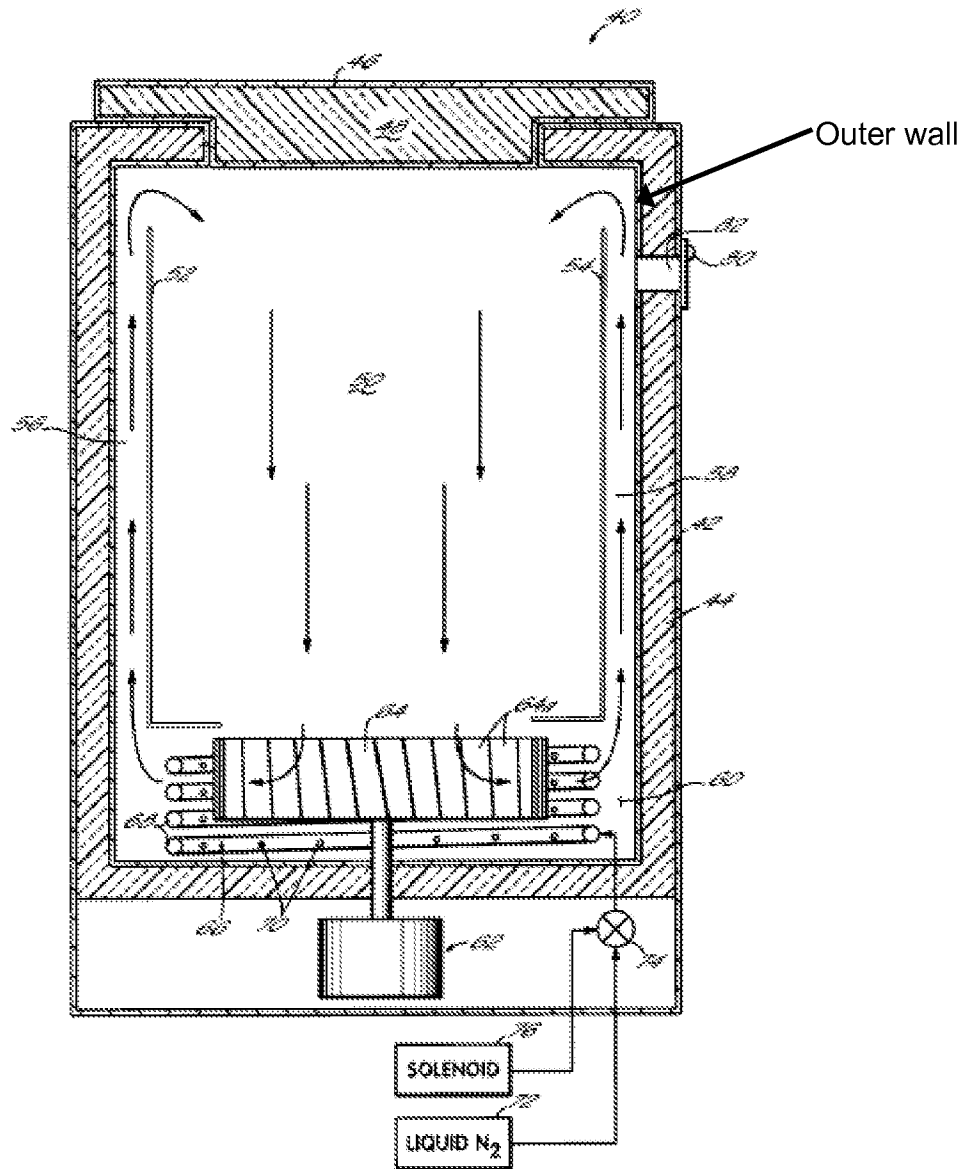
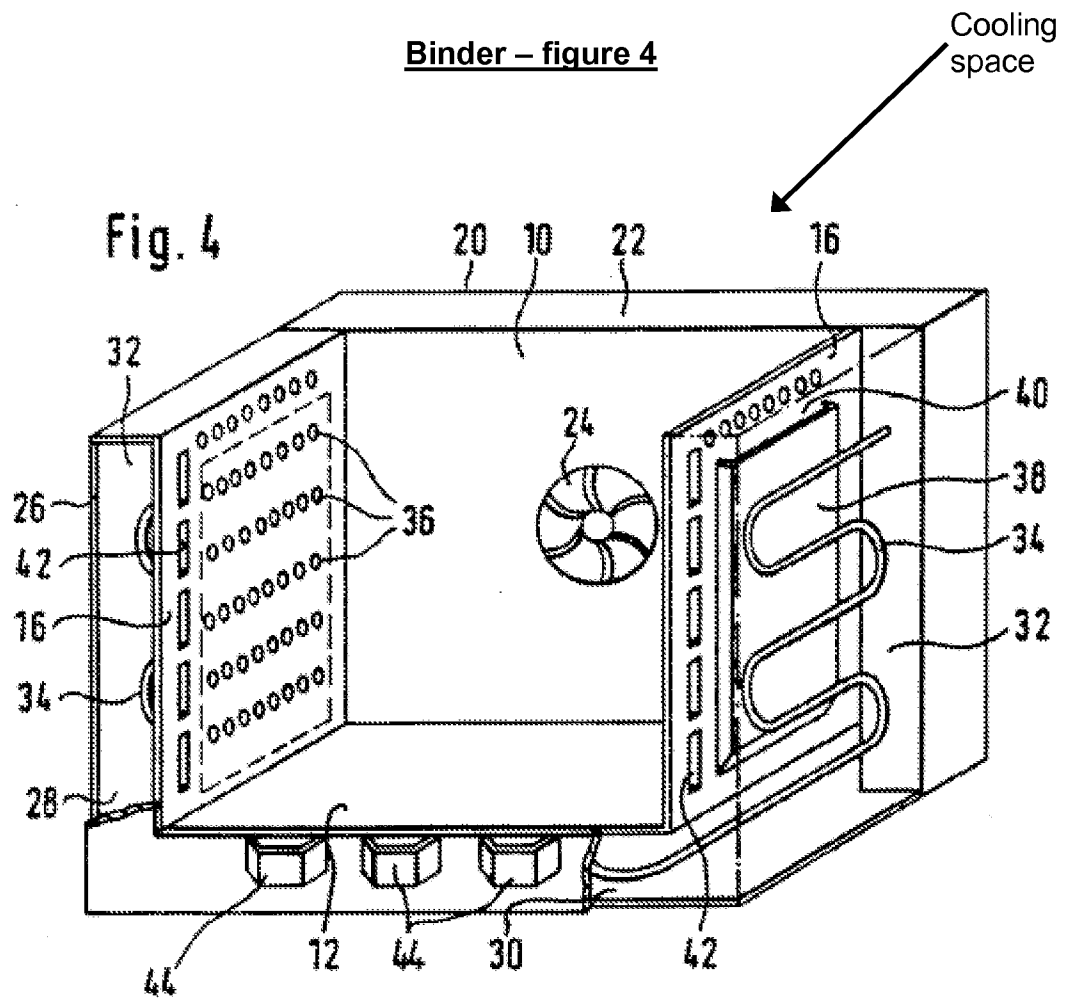


FIG. 3

Binder – figure 4



Response to Arguments

10. Applicant's arguments with respect to claims 21 & 24-40 have been considered but are moot in view of the new ground(s) of rejection due to amendments to the claims presented by applicant.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN LOFFREDO whose telephone number is (571) 270-7114. The examiner can normally be reached on M - F 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler & Frantz Jules can be reached on (571) 272-4834 & (571) 272-

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6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art
Unit 3744

Justin Loffredo
January 15, 2009